

therefore constitute added matter.

The invention is essentially of a simple construction and if de-constructed by ex-post facto analysis, its various features will inevitably be found in other documents. Even so, none of the cited art shows a similar combination of features.

Lambuth (US 4413 459 ) discloses a composite I beam which in Fig. 4 shows a pair of wood flanges interconnected by a pair of spaced apart plywood sidewalls forming a cavity. The cavity is empty. Lambuth does not disclose that the central cavity is filled with corrugated cardboard/paper. Furthermore, Lambuth does not disclose that the upper and lower flanges are of a thin plywood construction lying between particular width to thickness ratios.

The flanges shown in Lambuth are very thicker. In Lambuth the flange width  $W_f$  is stated as being about 1.5 inches (about 38mm) ( Col 4 line 42). By viewing the drawings it can be seen that the thickness of the flanges are about the same as its width (see Fig.2 especially). Even in Fig.4, the flange thickness is considerable and certainly does fall within the definition of Claim 15 as being between 1:16.33 and 1:10.90.

The Examiner contends that since Grigsby relates to a structural member having a central cavity filled with corrugated paper or cardboard then it is obvious to transfer this teaching to I beams for use in building. As previously argued Grigsby (US5681 641) does NOT disclose an I beam, but discloses a cardboard billet or strut for use in making pallets (Col.4 line 17). The applicant submits that the teaching in Grigsby would not naturally be considered in association with Lambuth.

Even if Grigsby and Lambuth are considered as documents that can be properly associated, albeit that they are in totally different search classes, International Classes B73B & E04C respectively and US Classes 428/182 and 52/729, Grigsby does not relate to I-beam and therefore adds nothing to the concept of an I beam having thin

plywood flanges and a web formed from two spaced apart plywood sidewalls even allowing that it discloses a filled cavity in a structural cardboard member.

Leslie ( US5848 513) relates to a box beam which incorporates an I beam as disclosed in Figs 9 and Fig 12. In Col.1 line 11-16 it is stated that conventional I beams included a elongate web with a pair of flanges. The flanges are stated as being plywood with the web comprising OSB. In lines 55-60 it is stated that stronger rafters require stronger webs which means increased thickness and that thicker webs are more expensive. Leslie makes this statement in the full light of Lambuth and Grigsby.

Now Leslie is a man skilled in the art of I beams for use in buildings. In Col 11 Leslie states that majority of components of the kit 10 are formed from OSB. In Cols 61-63 that the flanges are made of a "plurality of layers of plywood 48". The material for the web 45 is not defined and must be assumed to be OSB. Leslie, given the knowledge of Fig 4 in Lambuth and the teachings of Grigsby, coupled with his use of plywood flanges, has not arrived at the present invention. Leslie strengthens his I beam by addition of an outer plate member 66.

The plywood flange of the I beam comprises a plurality of layers of plywood, which form a substantially square section flange i.e. width to thickness ratio is about 1:1. If the plywood flanges of Leslie are added to the teaching of Lambuth Fig.4 the result is an I beam having extremely thick plywood flanges with a width to thickness ratio of about 1:1. This situation is not altered by the addition of the teachings of Grigsby.

The present invention has flanges comprising a single plywood layer comprising a plurality of plies, with a width to thickness ratio defining a thin flange. The present I beam with its thin flanges and particular web construction allows the present applicant to produce a very light beam which is extremely rigid and is visually totally different prior art. The applicant has recognised that the use of plywood allows the flanges of the present invention to be so thin, 5.5mm-6mm, when compared with the very thick

flanges shown in both Lambuth and Leslie. The beams shown in both Leslie and Lambuth are much heavier having flanges of upto 38mm in thickness and in the case of Leslie additional side plates. As a consequence the present I-beams are easier to handle on site and panels produced using such beams are also easy to handle.

The present I beam comprising plywood flanges with a web comprising two spaced apart plywood sidewalls is novel. An I beam having a web formed from two spaced apart sidewalls with the cavity between the sidewalls being filled with corrugated paper or cardboard is novel in itself. An I beam having thin plywood flanges together with a web comprising two spaced apart plywood sidewalls is also novel.

Since the present invention as now defined comprises a combination of three novel features it is submitted that the I beam as now claimed cannot be derived from a combination of any two cited documents, or even the combination of three documents and is not obvious over the prior art.

The feature of Claim 16 is not disclosed in Leslie which is the only document to disclose plywood flanges.

Since we believe Claim 15 to be acceptable we submit that the objections raised against the dependant Claims are waived.

Having further amended the specification and claims, it is now believed that the application is in condition for allowance and such action is respectfully requested. If the Examiner still feels that there are some minor matters which need to be resolved, Applicant's attorney would welcome a call from the Examiner at the below listed phone number.

Respectfully submitted,

  
Attorney for Applicant

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**Certificate of Transmittal**

I hereby certify that this correspondence is being facsimile transmitted to the US Patent and Trademark Office (Fax number (571) 273-8300) on November 21, 2007.

Paul E Milliken

Signature 